

REMARKS/ARGUMENTS

Claims 1, 2 and 4-6 are present in this application.

Claim 6 was rejected under 35 U.S.C. §112, first paragraph. The Office Action contends that “a feature wherein ONLY water chemistry is utilized is not a feature which was adequately disclosed by the specification as originally filed.” Applicants respectfully submit, however, that this contention is incorrect. Initially, claim 6 does not recite that only “water chemistry” is utilized for predicting component crack behavior. Claim 6 rather recites that only input “water chemistry characteristics” are input for predicting component crack behavior. In fact, “water chemistry” is one of several “water chemistry characteristics” as described in the specification. The section in the specification referenced in the Office Action (page 7, lines 16-22) are examples of water chemistry characteristics suitable for input to the crack growth behavior model that predicts component crack behavior. The specification describes that the crack growth behavior model 16 predicts component crack behavior according to the water chemistry characteristics input via the page 14. See page 7, lines 23-25.

Applicants thus respectfully submit that the subject matter of claim 6 is fully supported in the original specification and that the rejection is misplaced. Reconsideration and withdrawal of the rejection are respectfully requested.

Claims 1, 2 and 4-6 were rejected under 35 U.S.C. §103(a) over U.S. Patent No. 5,817,958 to Uchida et al. in view of U.S. Patent No. 6,298,308 to Reid et al. This rejection is respectfully traversed.

It is well settled that obviousness cannot be established by combining the teachings of the prior art to produce the claimed invention absent some teaching or suggestion supporting the combination. Under §103, teachings of references can be combined only if there is some

suggestion or incentive to do so. *ACS Hosp. Systems, Inc. v Montefiore Hosp.*, 732 F.2d 1572, 221 USPQ 929 (Fed. Cir. 1984). The mere fact that the prior art may be modified in the manner suggested by the Examiner does not make the modification obvious unless the prior art suggested the desirability of the modification. *In re Gordon*, 733 F.2d 900, 221 USPQ 1125 (Fed. Cir. 1984). As discussed in detail previously, independent claim 1 defines, *inter alia*, a step of outputting a real time crack growth prediction according to the input water chemistry characteristics. The Office Action seems to recognize that the Uchida patent lacks a specific disclosure of any such real time output; rather, the Office Action contends that "'real time' is interpreted to involve a delay and thus Uchida anticipates this feature since a delay must be present in any controlled system." The present invention, however, embodies an ability to calculate rates that are directly related to real time crack growth behavior. The disclosed system allows a direct ability to process inputs and use them to calculate crack growth rates that will support immediate decisions at the plant. The models are used with the network to address immediate decisions that are critical to plant operation including, for example, environmental changes as well as plant decisions to shut down for inspection or to improve plant operation and thereby avoid damage. The data can also be used in the regulatory environment to support the prudence of these decisions.

The Uchida patent, in contrast, employs plant charts or "plant record information," which implies long term compilation of data for future correlations. As such, Uchida does not remotely suggest the desirability for real time predictions as its methods require such long term compilations. Indeed, the methods are directed at developing residual life that employs such "plant charts" and degradation calculated from the charts. The wording throughout the Uchida patent states a reliance on correlations and plant charts, which is clearly associated with

historical plant data and extrapolation based purely on cumulative history, without any real time predictive tools. Moreover, Uchida continually discusses incubation times, which shows Uchida's intent on using existing correlations to estimate initiation phenomena, without any need or desirability for real time behavior determined on continuous evaluation of operational water chemistry and nuclear plant environment based on the real time information on operation. Uchida references only incubation times, coalescence, which generally are needed as part of stochastic assessments of initiation, in contrast with a real time prediction.

The models used in the Uchida patent are correlative models. They do not discuss instantaneous modeling; rather they discuss the review of data on the context of "in-family or out of family" types of behavior. The approach in Uchida is directed at estimating the potential for long term degradation since it references incubation times as well as long term degradation. The Uchida patent discusses crack length, which also implies a comparison over a long time as opposed to a crack rate which is instantaneous and is applicable to assessing the behavior of known cracks at any given time of operation. The instantaneous assessment is important to decisions on real time plant operation, which is an important feature of the invention. Nowhere does Uchida remotely consider the possibility or the need for real time crack growth rate calculations. Additionally, Uchida does not refer to the details of the needed parameters that are used in real time calculations.

The Office Action references Fig. 14 in Uchida, however the display screen used as an example is directed at highlighting residual life based on previous plant charts and the trade off of the effect of countermeasures based on predetermined information. The display shows the plant as if to indicate general regions of concern. The figure does not show crack growth rates or crack lengths. Uchida's approach does not use or suggest the desirability of using current real

time information to continually change the predicted crack growth rate and the real time trajectory of the growth of pre-existing flaws.

Applicants thus submit that Uchida lacks any teaching or suggestion of outputting a real time crack growth prediction according to the input water chemistry characteristics as claimed. For at least these reasons, Applicants respectfully submit that the rejection is misplaced.

Still further, in addition to a lack of suggestion to modify the Uchida patent, the Reid patent does not correct these deficiencies. The process described in Reid is clearly directed at residual life that would be tied to initiation estimates. It would not have been obvious to collect information analogous to vibration information and then make decisions on sudden changes in behavior to then make rapid changes to plant components.

Reid is directed at vibration monitoring, not crack growth behavior in nuclear power plants that operate with coolant and a water environment. The Reid process is focused on monitoring changes from in-family to out of family. It uses a distributed approach to bring together machinery information at the local level and then accumulate data from the different sites and transfer to a central site; it has a hierarchy and as such is not a real global network, per se.

Thus, even if somehow there is a suggestion to combine the cited references, the present invention does not ensue.

With regard to dependent claim 2, Applicants submit that this claim is allowable at least by virtue of its dependency on an allowable independent claim.

Applicants submit that claims 4-6 are allowable for reasons similar to those discussed above with respect to claim 1. Additionally, claim 6 defines a step of accessing a crack growth behavior model that predicts component crack behavior according to the input water chemistry

characteristics, wherein the input water chemistry characteristics are the only data input via the global computer network for predicting component crack behavior. In this context, the Office Action recognizes that this subject matter is lacking in Uchida and Reid, taken singly or in combination. The Examiner contends, however, that this feature would have been obvious "since clearly if a system is capable of utilizing several different types of data in order to obtain an accurate solution to a problem, then the same system would possess the capability of performing this solution using a subset of the different types of data, and the size of the subset appears to be of little patentable significance." Applicants submit, however, that this contention is counter-intuitive.

Indeed, if a behavior model, or any other system for that matter, describes specific parameters to arrive at its intended conclusion, it does not in any manner suggest that it could arrive at the same conclusion with only some of the required parameters. In fact, Applicants submit that opposite holds true since the required parameters would represent the minimum input required to achieve the intended goal. If, on the other hand, the system had access to additional parameters over and above the minimum required, then of course the same result could be obtained; without the minimum parameters, however, the result would be inaccurate, and it should be clear that "the size of the subset" is a critical component.

Since Uchida and Reid lack any teaching or suggestion of using only water chemistry characteristics for predicting component crack behavior, Applicants submit that for this reason also, the rejection is misplaced.

Reconsideration and withdrawal of the rejection are respectfully requested.

In view of the foregoing remarks, Applicants respectfully submit that the claims are patentable over the art of record and that the application is in condition for allowance. Should

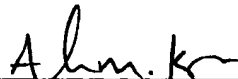
HORN et al.
Appl. No. 09/748,144
August 3, 2005

the Examiner believe that anything further is desirable in order to place the application in condition for allowance, the Examiner is invited to contact Applicants' undersigned attorney at the telephone number listed below.

Prompt passage to issuance is earnestly solicited.

Respectfully submitted,

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